» User Guide «

CP6016 uEFI BIOS

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Imprint

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Chapter 1

Starting uEFI BIOS Setup

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1. Starting uEFI BIOS Setup

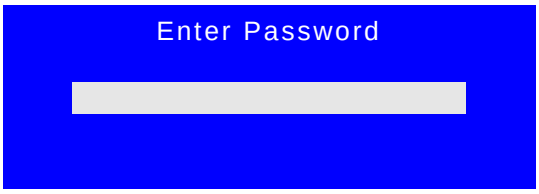
The CP6016 is provided with a Kontron-customized, pre-installed and configured version of Aptio® (referred to as uEFI BIOS in this manual), AMI's next generation BIOS firmware based on the Unified Extensible Firmware Interface (uEFI) specification and the Intel® Platform Innovation Framework for EFI. This uEFI BIOS provides a variety of new and enhanced functions specifically tailored to the hardware features of the CP6016.

To take advantage of these functions, the uEFI BIOS comes with a Setup program which provides quick and easy access to the individual function settings for control or modification of the uEFI BIOS configuration.

The Setup program allows the accessing of various menus which provide functions or access to sub-menus with more specific functions of their own. The individual menus and the configurable functions are described in this guide.

To start the uEFI BIOS Setup program, follow the steps below:

1. Power on the board.
2. Wait until the first characters appear on the screen (POST messages or splash screen).
3. Press the <F2> key.
4. If the uEFI BIOS is password-protected, a window such as the one below will appear:



   Enter either the User password or the Administrator password (refer to chapter 6, Security Setup for further information), press <RETURN>, and proceed with step 2.

5. A Setup menu with the following token attributes will appear.
   The currently active menu and the currently active uEFI BIOS Setup item are highlighted in white.

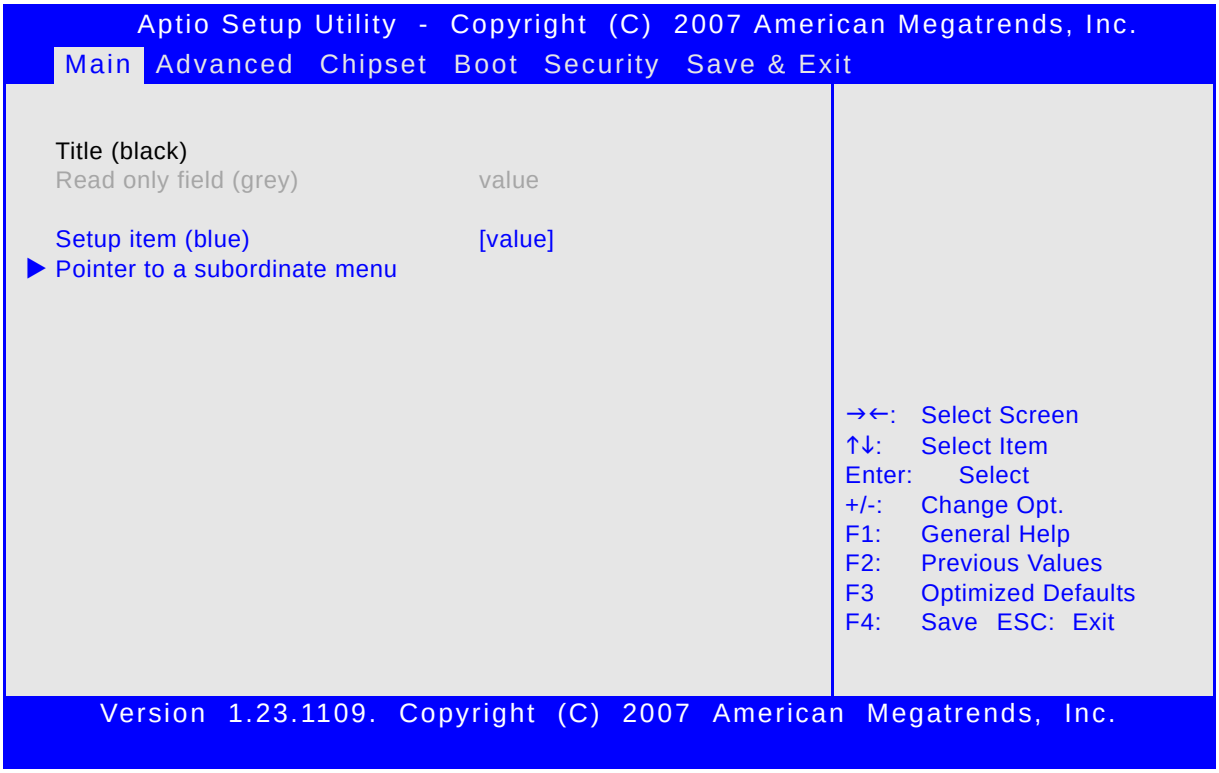
1.1 Main Setup Menu

The Main setup menu is the first screen that appears after starting the Setup program.

At the top of this screen and all of the other major screens, there is a setup menu selection bar, which permits access to all of the other major setup menus. These menus are selected via the left-right arrow keys.

All setup menu screens have two main frames. The left frame displays all the functions that can be configured. They are displayed in blue. Functions displayed in gray provide information about the status or the operational configuration.

The right frame displays the key legend. Above the key legend there is an area reserved for a text message. When an function is selected in the left frame, it is displayed in white. Often a text message will accompany it.


Aptio Setup Utility - Copyright (C) 2007 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Title (black)
Read only field (grey) value
Setup item (blue) [value]
▶ Pointer to a subordinate menu
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3 Optimized Defaults
F4: Save ESC: Exit
Version 1.23.1109. Copyright (C) 2007 American Megatrends, Inc.

1.2 Navigation

The CP6016 uEFI BIOS setup program uses a hot key-based navigation system. A hot key legend is located in the right frame on most setup screens.The following table provides information concerning the usage of these hot keys.

HOT KEY	DESCRIPTION
<F1>	The <F1> key is used to invoke the General Help window.
<F2>	The <F2> key is used to restore the previous values.
<F3>	The <F3> key is used to load the defaults.
<F4>	The <F4> key is used to save the current settings and exit the uEFI BIOS Setup.
→ ← Left/Right	The *Left and Right* <Arrow> keys are used to select a major Setup screen. For example: Main Screen, Advanced Screen, Chipset Screen, etc.
↑ ↓ Up/Down	The *Up and Down* <Arrow> keys are used to select a Setup function or a sub-screen.
+ - Plus/Minus	The *Plus and Minus* <Arrow> keys are used to change the field value of a particular Setup function, for example, system date and time.
<ESC>	The <ESC> key is used to exit a menu or the uEFI BIOS Setup. Pressing the <ESC> key in a sub-menu causes the next higher menu level to be displayed. When the <ESC> key is pressed in a major Setup menu, the uEFI BIOS Setup is terminated without saving any changes made.
<Enter>	The <Enter> key is used to execute a command or select a menu.

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Chapter 2

Main Setup

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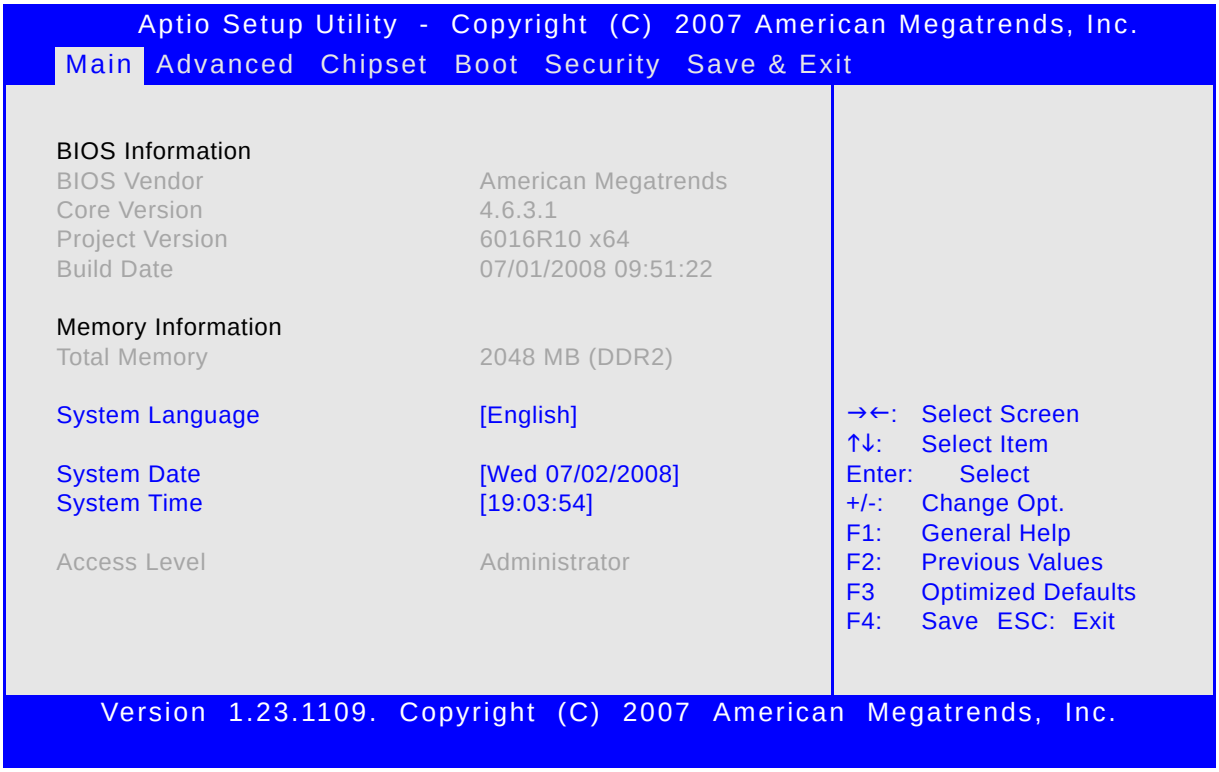
2. Main Setup

Upon entering the uEFI BIOS Setup program, the Main setup screen is displayed. This screen provides very basic system information as well as functions for setting the system time and date. In addition, the remaining major setup menus can be accessed from this screen. This screen can also be selected from any other major setup screen by using the Main tab.



2.1 BIOS Information

This function provides display-only information concerning the uEFI BIOS.

2.2 Memory Information

This function provides display-only information concerning the system memory.

2.3 System Language

SETTING	DESCRIPTION
English	Use this function to select the system language. Currently, only English is supported.

2.4 System Date

SETTING	DESCRIPTION
<MM/DD/YYYY>	Use this function to change the system date. Select System Date using the Up and Down <Arrow> keys. Enter the new values through the keyboard. Press the Left and Right <Arrow> keys to move between fields.

2.5 System Time

SETTING	DESCRIPTION
<HH:MM:SS>	Use this function to change the system time. Select System Time using the Up and Down <Arrow> keys. Enter the new values through the keyboard. Press the Left and Right <Arrow> keys to move between fields.

Note: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

2.6 Access Level

This function provides display-only information concerning the uEFI BIOS Setup accessibility for the current Setup session. Depending on the type of password protection used, one of the following settings is displayed:

SETTING	DESCRIPTION
Administrator	This setting indicates that read/write access to all setup options is available.
User	This setting indicates that only a limited subset of all setup options is modifiable.

Note: If no password is set, the access setup is Administrator.

Chapter 3

Advanced Setup

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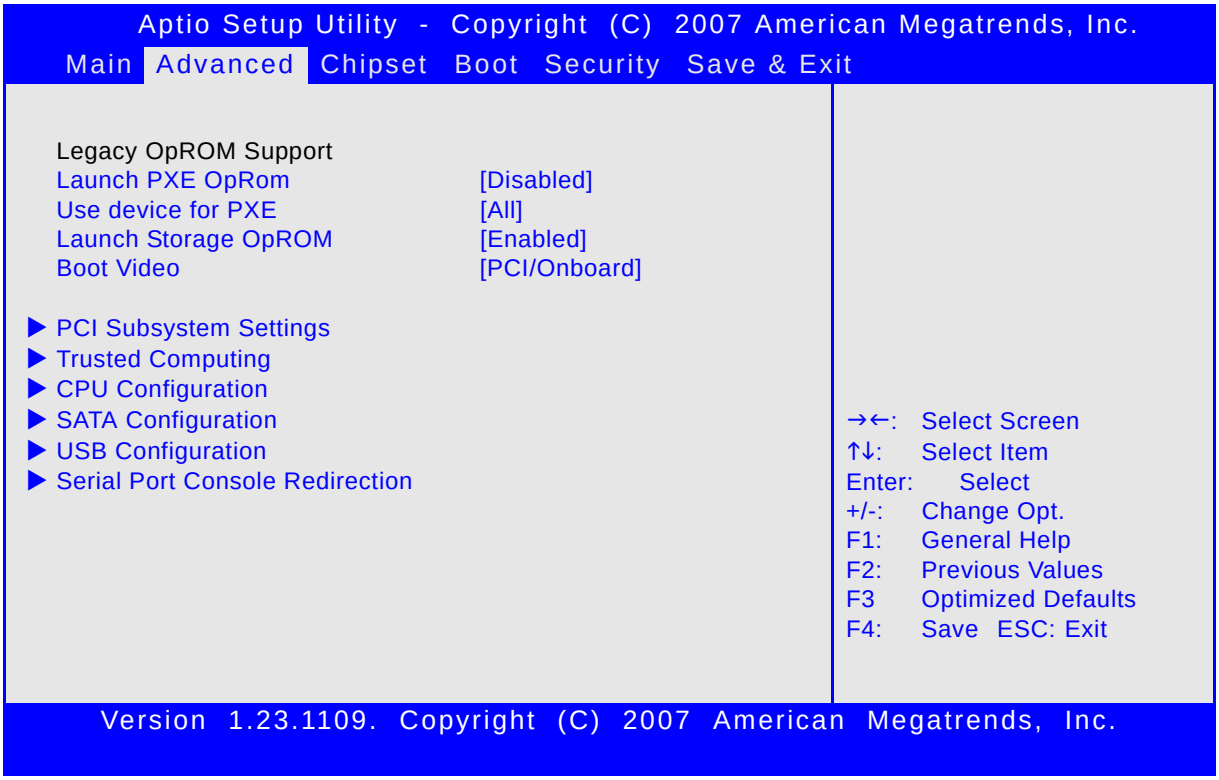
3. Advanced Setup

Select the Advanced tab to enter the Advanced Setup screen. This screen lists the advanced configuration sub-screens.


Aptio Setup Utility - Copyright (C) 2007 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Legacy OpROM Support
Launch PXE OpRom [Disabled]
Use device for PXE [All]
Launch Storage OpROM [Enabled]
Boot Video [PCI/Onboard]
▶ PCI Subsystem Settings
▶ Trusted Computing
▶ CPU Configuration
▶ SATA Configuration
▶ USB Configuration
▶ Serial Port Console Redirection
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3 Optimized Defaults
F4: Save ESC: Exit
Version 1.23.1109. Copyright (C) 2007 American Megatrends, Inc.

3.1 Legacy OpROM

3.1.1 Launch PXE OpROM

SETTING	DESCRIPTION
Disabled	Use this setting to ignore all PXE Option ROMs.
Enabled	Use this setting to load PXE Option ROMs. To limit the PXE support to particular devices, use the function Use device for PXE.

Default setting: Disabled

3.1.2 Use Device for PXE

This function is used to select the Ethernet devices for booting via PXE. This reduces the boot time if network boot is needed only on one particular device, not on all devices.

Note: This function is available only when the function Launch PXE OpROM is set to Enabled.

SETTING	DESCRIPTION
All	Use this setting to provide PXE support for the Ethernet connectors GbE A, GbE B, GbE C and GbE D.
01:00.0	Use this setting to provide PXE support only for the Ethernet connector GbE C.
01.00.1	Use this setting to provide PXE support only for the Ethernet connector GbE D.
02:00.0	Use this setting to provide PXE support only for the Ethernet connector GbE A.
02.00.1	Use this setting to provide PXE support only for the Ethernet connector GbE B.

Default setting: All

Note: There is no PXE support for the Ethernet connector GbE E.

3.1.3 Launch Storage OpROM

SETTING	DESCRIPTION
Disabled	Use this setting to disable this function.
Enabled	Use this setting to specify that legacy PCI option ROMs for PCI storage devices are to be loaded and executed, if found. Typical examples of PCI storage devices include SCSI or similar devices.

Default setting: Enabled

3.1.4 Boot Video

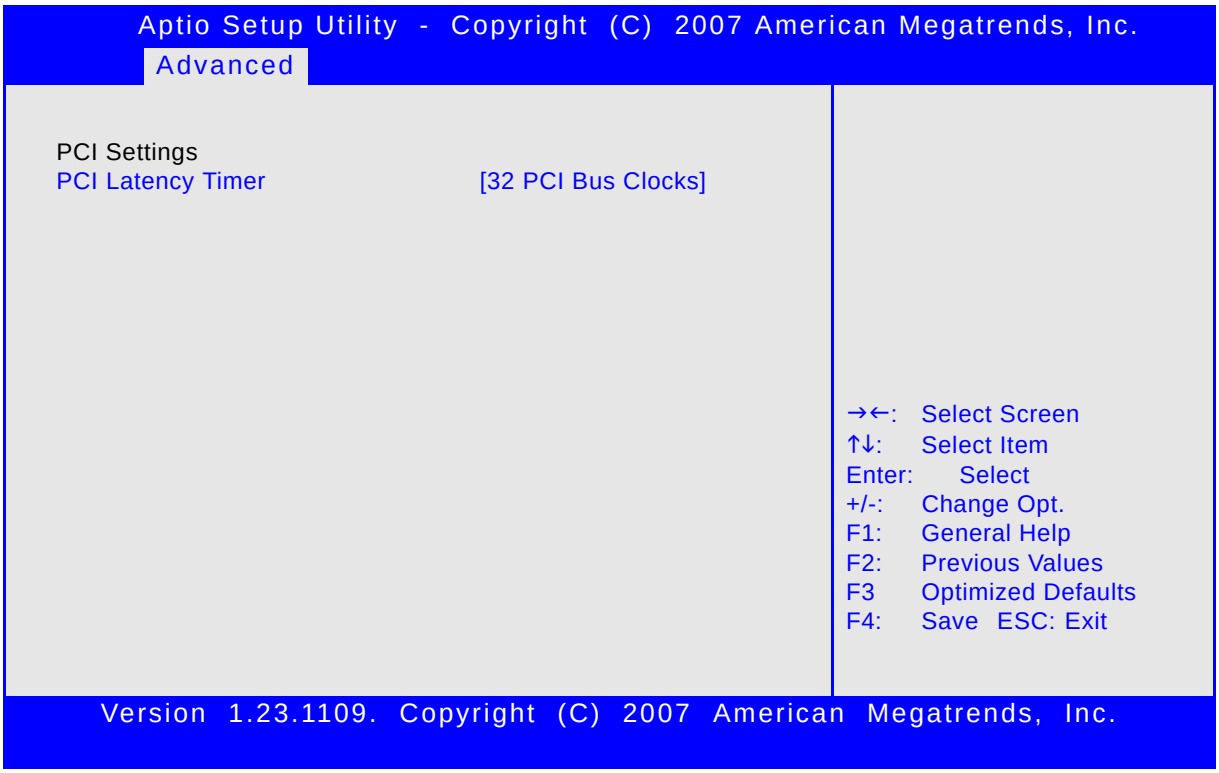
This function is used to select the preferred boot video device for the POST output.

SETTING	DESCRIPTION
PCI/Onboard	Use this setting to specify that an external PCI video device is to be used for POST output, if present. If no PCI video device is present, the onboard video device will to be used for the POST output.
Onboard	Use this setting to specify that the onboard video device is to be used for the POST output.

Default setting: PCI/Onboard

3.2 PCI Subsystem Settings

This screen provides functions for specifying the PCI Subsystem Settings.



3.2.1 PCI Settings

3.2.1.1 PCI Latency Timer

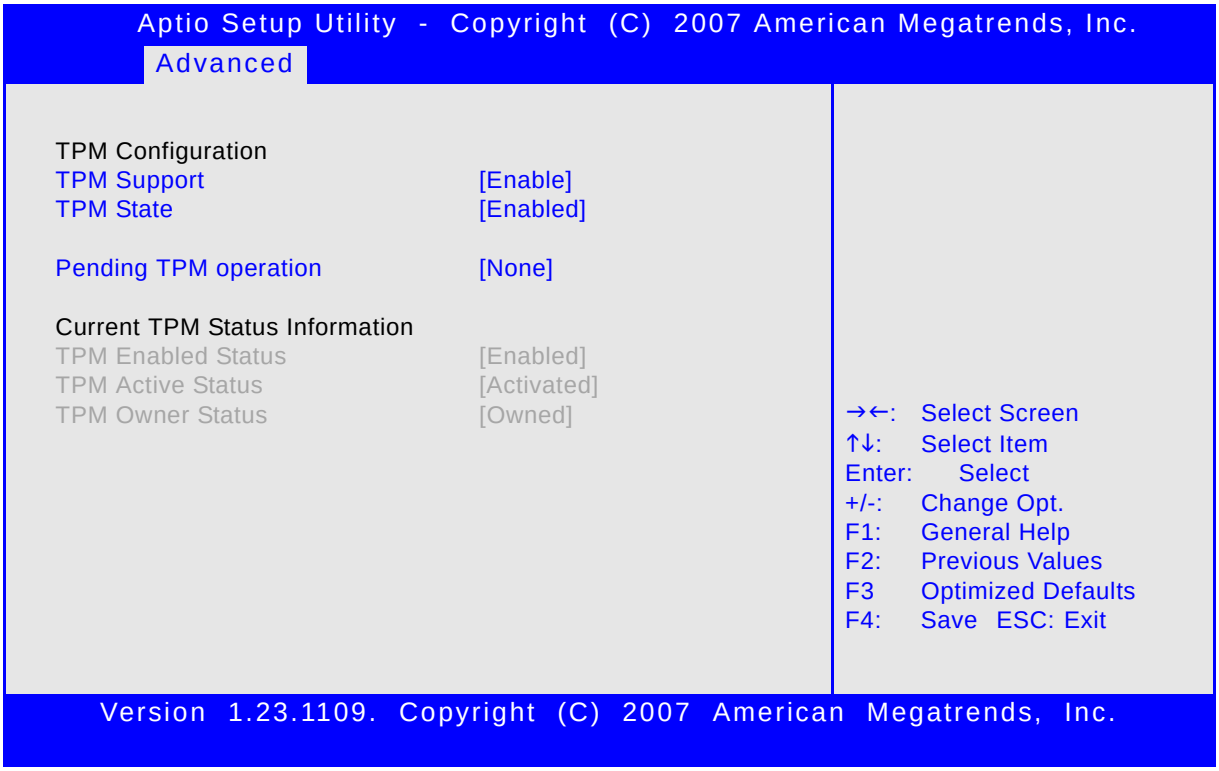
Use this function to select the number of PCI bus clocks to be used for the PCI latency timer.

SETTING	DESCRIPTION
32 PCI Bus Clocks	Use this setting to program the PCI latency timer to 32 PCI bus clocks.
64 PCI Bus Clocks	Use this setting to program the PCI latency timer to 64 PCI bus clocks.
96 PCI Bus Clocks	Use this setting to program the PCI latency timer to 96 PCI bus clocks.
128 PCI Bus Clocks	Use this setting to program the PCI latency timer to 128 PCI bus clocks.
160 PCI Bus Clocks	Use this setting to program the PCI latency timer to 160 PCI bus clocks.
192 PCI Bus Clocks	Use this setting to program the PCI latency timer to 192 PCI bus clocks
224 PCI Bus Clocks	Use this setting to program the PCI latency timer to 224 PCI bus clocks.
248 PCI Bus Clocks	Use this setting to program the PCI latency timer to 248 PCI bus clocks.

Default setting: 32 PCI Bus Clocks

3.3 Trusted Computing

This screen provides functions for specifying the TPM configuration settings and TPM displaying status information.



3.3.1 TPM Configuration

3.3.1.1 TPM Support

This function is used to provide the Trusted Platform Module (TPM) functionality to the OS.

SETTING	DESCRIPTION
Disable	Use this setting to disable the TPM support. If this setting is used, the TPM is not present for the OS, regardless whether the function TPM State is enabled or not.
Enable	Use this setting to enable the TPM support.

Default setting: Disable

3.3.1.2 TPM State

This function is used to select the TPM State command to be issued to the TPM after POST.

Note: This function is available only when the function TPM Support is set to Enable.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the TPM after POST. If this setting is used, the TPM is present for the OS but its functionality is locked.
Enabled	Use this setting to enable the TPM after POST.

Default setting: Disabled

3.3.2 Pending TPM Operation

This function is used to select a TPM command to be issued once against the TPM during the next boot.

Note: This function is available only when the function TPM Support is set to Enable.

SETTING	DESCRIPTION
None	Use this setting to prevent the system from issuing any TPM commands.
Enable Take Ownership	Use this setting to alow the system to issue an Enable Take Ownership command during the next boot. If this setting is used, the Take Ownership command is enabled, which allows the OS to take ownership of the TPM.
Disable Take Ownership	Use this setting to allow the system to issue a Disable Take Ownership command during the next boot. If this setting is used, the Take Ownership command is disabled, which prevents the OS from taking ownership of the TPM.
TPM Clear	Use this setting to allow the system to issue a TPM Clear command during the next boot. If this setting is used, the TPM is reset to the factory default. Warning: Use of this setting also deletes any keys and passwords stored within the TPM. Always ensure that encryption software such as Microsoft BitLocker, etc. are deactivated prior to selecting this setting.

Default setting: None

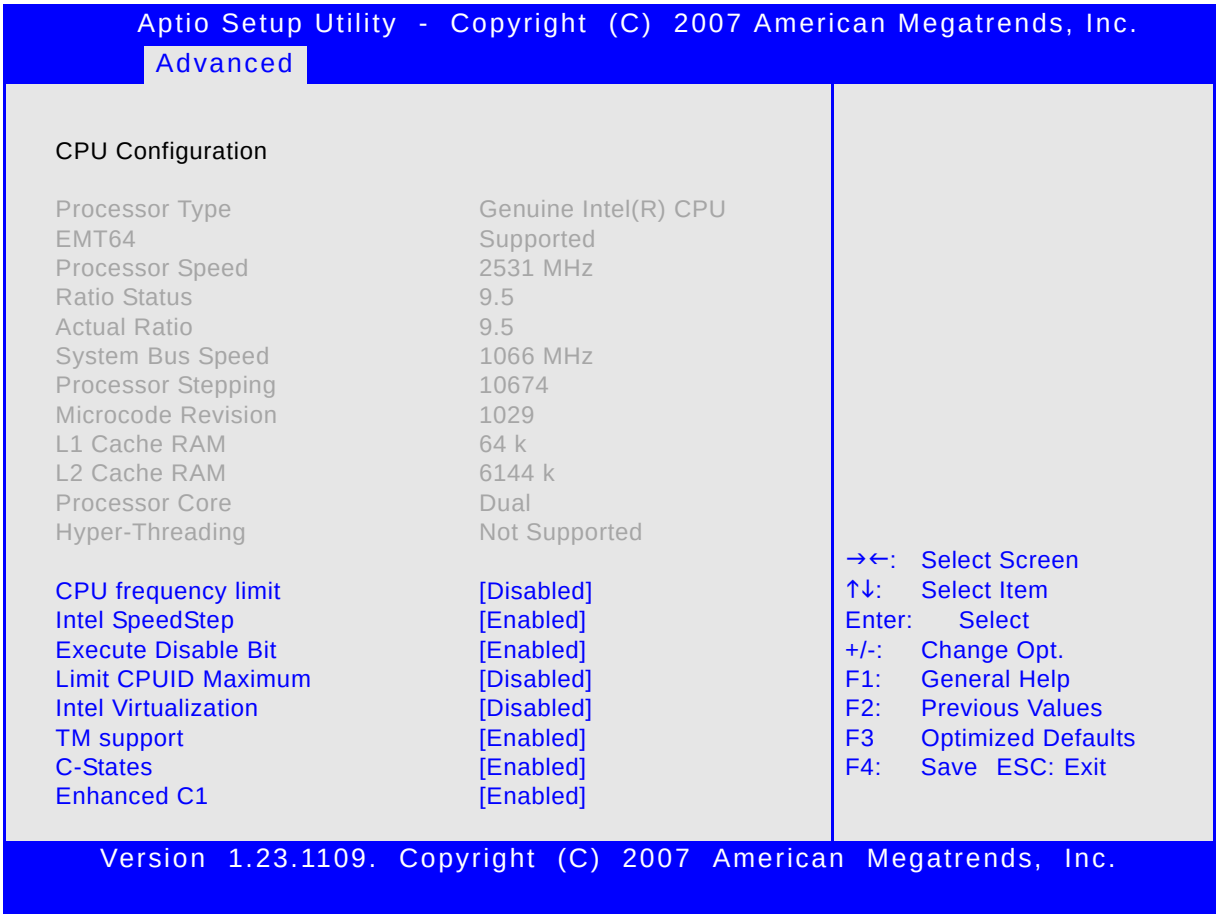
3.3.3 Current TPM Status Information

This is a display-only function providing status information about the TPM.

FUNCTION	DESCRIPTION
TPM Enabled Status	Displays if the TPM device is enabled.
TPM Active	Displays if the TPM has been activated by the OS.
TPM Owner Status	Displays if the OS has taken ownership of the TPM device.

3.4 CPU Configuration

This screen provides basic information about the CPU and functions for specifying CPU configuration settings.



3.4.1 CPU Configuration

This is a display-only function indicating general information about the installed CPU.

FUNCTION	DESCRIPTION
Processor Type	CPU brand string provided by the CPU
EMT64	Displays if the CPU supports the EMT64 extension to the x86 feature set. This is also known as x86_64 or AMD64 extension.
Processor Speed	Current CPU frequency in MHz
Ratio Status	Maximum FSB divisor Processor Speed == ((System Bus Speed) /4) * Ratio
Actual Ratio	Current FSB divisor Processor Speed == ((System Bus Speed) /4) * Ratio
System Bus Speed	Current speed of front side bus in MHz
Processor Stepping	CPU ID and stepping in hexadecimal
Microcode Revision	Microcode revision in hexadecimal
L1 Cache RAM	Amount of L1 cache present in KiB
L2 Cache RAM	Amount of L2 cache present in KiB
Processor Core	Number of CPU cores present
Hyper-Threading	Displays if the current CPU supports Hyper-Threading

3.4.2 CPU Frequency Limit

SETTING	DESCRIPTION
Disabled	Use this setting to disable the CPU frequency limiting.
Enabled	Use this setting to limit the CPU frequency to a thermally optimized value.

Default setting: Disabled

3.4.3 Intel SpeedStep

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the system from controlling the CPU frequency via the Intel® SpeedStep™ function. The CPU will run at maximum speed.
Enabled	Use this setting to allow the operating system to control the CPU speed via the Intel® SpeedStep™ function. The BIOS will start with high CPU speed.

Default setting: Enabled

3.4.4 Execute Disable Bit

The Execute Disable Bit feature is also known as NX feature or XD feature.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Execute Disable Bit function.
Enabled	Use this setting to prevent malicious buffer overflow attacks when combined with a supporting OS (Windows 2003 SP1, Windows XP SP2, all modern Linux distributions).

Default setting: Enabled

3.4.5 Limit CPUID Maximum

When the computer is booted up, the operating system queries the processor to find out the highest input value CPUID recognized. Older processors until the Pentium IV returned 3 here, newer CPUs support more information. Some older operating systems such as Windows 98 fail for CPUID levels greater than 3. This function is used to limit the return value for the maximum CPUID input value to 03h when queried.

SETTING	DESCRIPTION
Disabled	Use this setting to obtain the processor's current CPUID input value when queried.
Enabled	Use this setting to limit the processor's maximum CPUID input value to 03h when queried, even if the processor supports a higher CPUID input value.

Default setting: Disabled

3.4.6 Intel Virtualization

This function is used to enable a Virtual Machine Manager (VMM) to utilize the additional hardware capabilities provided by the Vanderpool Technology. To change the state of this function, a hardware reset is necessary.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Intel Virtualization.
Enabled	Use this setting to enable the Intel Virtualization. A VMM can utilize the additional hardware capabilities provided by the Vanderpool Technology.

Default setting: Disabled

3.4.7 TM Support

This function is used to specify the Thermal Monitor feature. When Enabled is selected, the CPU speed will be automatically reduced if the maximum die temperature of 105°C is reached. It is highly recommended to leave this function enabled.

When Disabled is selected, the CPU temperature may exceed 105°C in case of insufficient cooling. This will reduce the CPU's life time, and may cause system instabilities.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the CPU Thermal Monitor function.
Enabled	Use this setting to enable the CPU Thermal Monitor function.

Default Setting: Enabled

3.4.8 C-States

Modern CPUs can be put into a deeper sleeping state when idle at the cost of longer wake-up times. This function is used to prevent the OS from putting the CPU in a deeper sleep state than C1.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the OS from using any C-State except C1.
Enabled	Use this setting to allow all supported C-States.

Default setting: Disabled

3.4.9 Enhanced C1

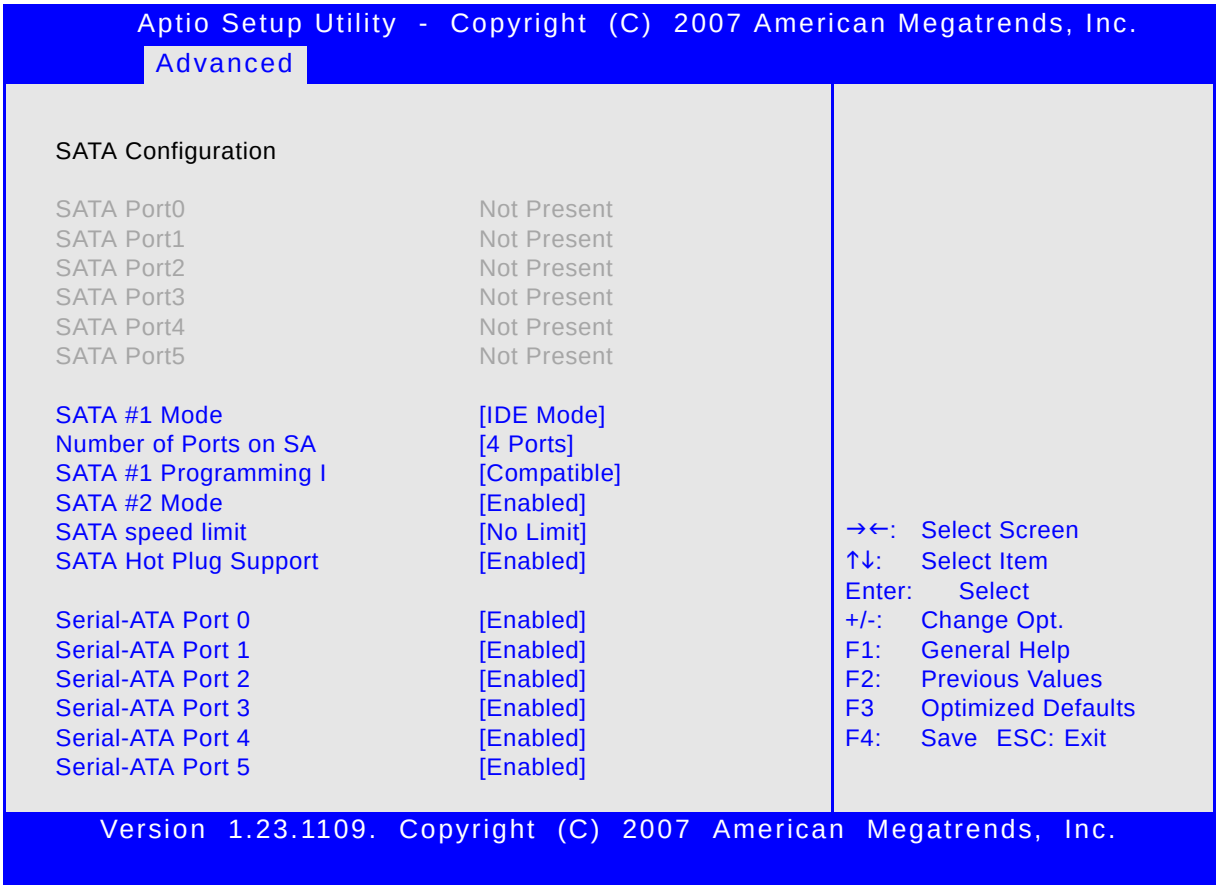
When the CPU is idle, the OS can put the CPU into a halt state. This function is used to exchange the normal halt state 1 (C1) by the extended one that also lowers the CPU voltage (C1E).

SETTING	DESCRIPTION
Use standard C1	Use this setting to select the normal C1 state.
Use C1E	Use this setting to select the enhanced C1 state.

Default setting: Use C1E

3.5 SATA Configuration

This screen provides information about SATA ports installed as well as functions for specifying the SATA configuration settings.


Aptio Setup Utility - Copyright (C) 2007 American Megatrends, Inc.
Advanced
SATA Configuration
SATA Port0 Not Present
SATA Port1 Not Present
SATA Port2 Not Present
SATA Port3 Not Present
SATA Port4 Not Present
SATA Port5 Not Present
SATA #1 Mode [IDE Mode]
Number of Ports on SA [4 Ports]
SATA #1 Programming I [Compatible]
SATA #2 Mode [Enabled]
SATA speed limit [No Limit]
SATA Hot Plug Support [Enabled]
Serial-ATA Port 0 [Enabled]
Serial-ATA Port 1 [Enabled]
Serial-ATA Port 2 [Enabled]
Serial-ATA Port 3 [Enabled]
Serial-ATA Port 4 [Enabled]
Serial-ATA Port 5 [Enabled]
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3 Optimized Defaults
F4: Save ESC: Exit
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3.5.1 SATA Configuration

This is a display-only function indicating if a device is connected to the corresponding port (SATA Ports 0..5). If no device is connected, the functions indicate Not Present. Otherwise, they show the device's built-in reference name followed by the device's size if the device is a hard drive. The functions are available only if the SATA controller is not in RAID mode.

3.5.2 SATA #1 Mode

This function is used to select the modes in which the six SATA channels can be operated in.

SETTING	DESCRIPTION
Disabled	Use this setting to disable all SATA channels.
IDE Mode	When this setting is used, the following applies: The SATA channels 0 to 3 are logically attached to one legacy ATA compatible PCI device where channel 0 forms the primary master, channel 1 the primary slave, channel 2 the secondary master and channel 3 the secondary slave device. The remaining channels 4 and 5 are attached to another legacy ATA compatible PCI device where channel 4 forms the tertiary master and channel 5 the tertiary slave device. For further information about the Serial ATA Ports 0..5, refer to Chapter 3.5.8 in this manual.
AHCI Mode	Use this setting to attach all six SATA channels to one AHCI-compatible PCI mass storage controller.
RAID Mode	Use this setting to specify that either all six channels or channels 0 to 3 are attached to one RAID PCI controller. If only channels 0 to 3 are attached to the RAID controller, channel 4 and 5 are attached to one legacy ATA compatible PCI device.

Default setting: IDE Mode

3.5.3 Number of Ports on SATA #1

This function controls the number of SATA channels to be connected to the RAID controller.

Note: This function is available only when the function SATA #1 Mode is set to RAID Mode.

SETTING	DESCRIPTION
4 Ports	Use this setting to specify that the SATA channels 0 to 3 are connected to the RAID controller and the SATA channels 4 and 5 are connected to the second legacy IDE-compatible controller.
6 Ports	Use this setting to specify that all six SATA channels are connected to the RAID controller.

Default setting: 4 Ports

3.5.4 SATA #1 Programming Interface

This function controls the resource of the SATA controller 1 if it is in IDE Mode.

Note: This function is available only when the function SATA #1 Mode is set to IDE Mode.

SETTING	DESCRIPTION
Compatible	Use this setting to specify that the IDE controller is to behave like a standard ISA IDE controller requiring dedicated IO and IRQ resources.
Enhanced	Use this setting to specify that the IDE controller is to behave like any other PCI device. When this setting is used, the IDE controller gets its resources assigned by the normal PCI initialization process.

Default setting: Compatible

3.5.5 SATA #2 Mode

This function controls the presence of the second legacy IDE-compatible PCI device if the function SATA #1 Mode is set to either Disabled, IDE Mode, or RAID Mode.

SETTING	DESCRIPTION
Disabled	Use this setting to disable this function.
Enabled	Use this setting to enable this function.

Default setting: Enabled

3.5.6 SATA Speed Limit

This function specifies the SATA speed limit. The ICH9R features six SATA channels capable of SATA GEN2 operating speed. Due to the bad signal quality when using long cables or rear I/O, it may be required to limit the speed to SATA GEN1.

SETTING	DESCRIPTION
No Limit	Use this setting to specify that all six SATA channels are allowed to operate up to SATA GEN2 speed if supported by the connected device.
GEN1 Rate	Use this setting to specify that all six channels are limited to SATA GEN1 speed regardless of the connected device.

Default setting: No Limit

3.5.7 SATA Hot Plug Support

The ICH9R features SATA hot plugging if the function SATA#1 Mode is set to AHCI Mode.

SETTING	DESCRIPTION
Disabled	Use this setting to disable SATA hot plug support.
Enabled	Use this setting to enable SATA hot plug support.

Default setting: Enabled

3.5.8 Serial-ATA Ports 0..5

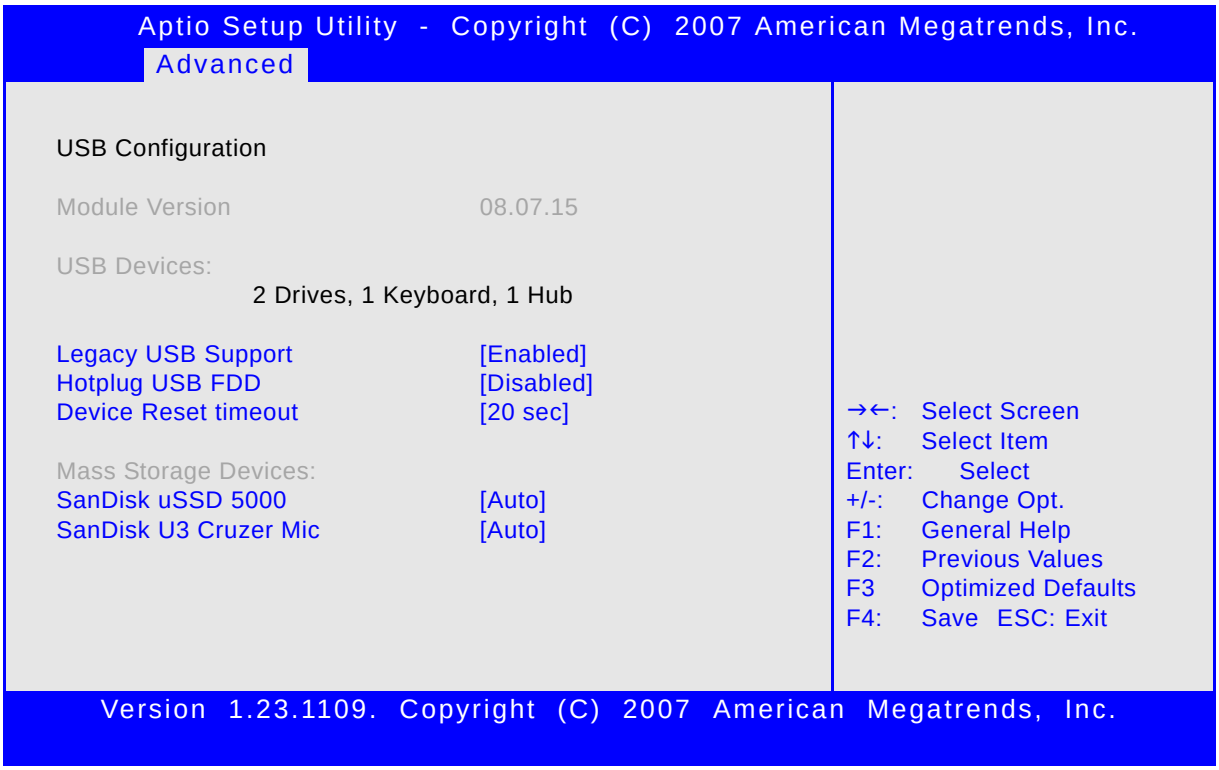
Use one of these functions to enable or disable the SATA ports on a port-by-port basis.

FUNCTION	ROUTING	SETTING
Serial-ATA Port 0	Onboard SATA connector	Disabled / Enabled
Serial-ATA Port 1	Onboard 2.5” HDD	Disabled / Enabled
Serial-ATA Port 2	Rear I/O (HT3:x signal on the rear I/O connector J5)	Disabled / Enabled
Serial-ATA Port 3	Rear I/O (HT2:x signal on the rear I/O connector J5)	Disabled / Enabled
Serial-ATA Port 4	Rear I/O (HT1:x signal on the rear I/O connector J5)	Disabled / Enabled
Serial-ATA Port 5	Rear I/O (HT0:x signal on the rear I/O connector J5)	Disabled / Enabled

Default setting: Enabled

3.6 USB Configuration

This screen provides information about support for USB devices as well as functions for specifying the USB configuration settings.



3.6.1 USB Configuration

This is a display-only function providing general information about the USB module and the USB devices detected.

SETTING	DESCRIPTION
Module Version	Displays the version of the USB module as provided by AMI.
USB Devices	Shows a summary of detected USB devices.

3.6.2 Legacy USB Support

This function is required for booting from USB devices and for operating systems which do not support USB themselves (mainly DOS and some BootLoaders).

SETTING	DESCRIPTION
Disabled	Use this setting to disable legacy USB support.
Enabled	Use this setting to enable legacy USB support.
Auto	Use this setting to enable legacy USB support if there are USB devices present.

Default setting: Enabled

3.6.3 Hotplug USB FDD

This function is used to allow the system to create a dummy FDD device which will later be assigned to a hotplugged USB FDD device.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the system from creating a dummy FDD device.
Enabled	Use this setting to allow the system to create a dummy FDD device.
Auto	Use this setting to allow the system to only create a dummy device if no other USB FDD device is present.

Default setting: Disabled

3.6.4 Device Reset Timeout

This setting selects the timeout in seconds that the USB core will wait for a USB storage device to become ready after start unit command.

SETTING	DESCRIPTION
10 sec 20 sec 30 sec 40 sec	Use one of these settings to specify how long the USB core will wait for a USB mass storage device to become ready after the start unit command.

Default setting: 20 sec

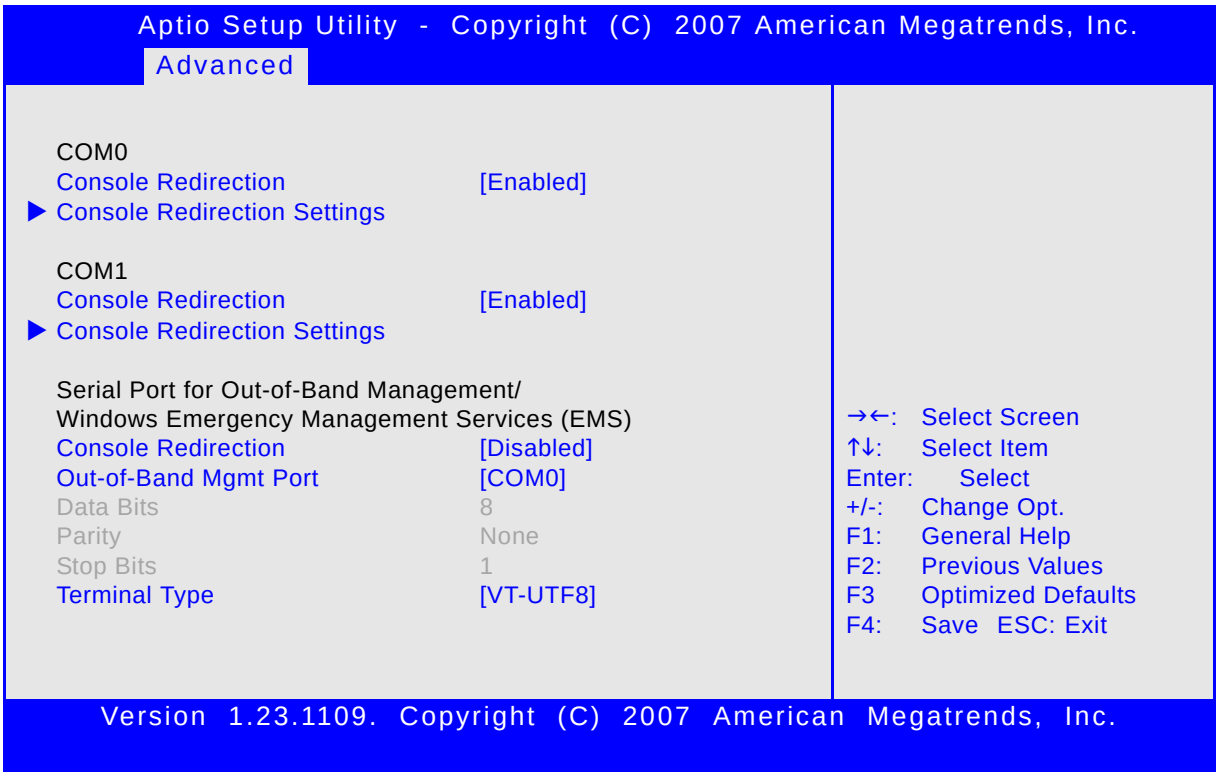
3.6.5 Mass Storage Devices

This function shows a list of connected USB mass storage devices and allows the user to select how the respective device is to be treated.

SETTING	DESCRIPTION
Auto	Use this setting to specify that devices with a capacity smaller than 128 MB will be treated as USB floppy, larger ones as USB hard drive.
Floppy	Use this setting to specify that the device is treated as floppy, regardless of its size.
Forced FDD	Use this setting to force the device to be booted as floppy, even if it is formatted as hard drive.
Hard Disk	Use this setting to treat the device as hard disk, regardless of its size.
CD-ROM	Use this setting to treat the device as CD-ROM even if its class code does not identify the device as such.

3.7 Serial Port Console Redirection

This screen provides information about functions for specifying the Serial Port Console Redirection configuration settings. Console redirection can be used to remotely operate system settings and the EFI console.



3.7.1 COM0

3.7.1.1 Console Redirection

SETTING	DESCRIPTION
Disabled	Use this setting to disable console redirection for the serial port 0.
Enabled	Use this setting to enable console redirection for the serial port 0.

Default setting: Enabled

3.7.1.2 Console Redirection Settings

For information about this function, refer to Chapter 3.7.4 in this manual.

3.7.2 COM1

3.7.2.1 Console Redirection

SETTING	DESCRIPTION
Disabled	Use this setting to disable console redirection for the serial port 1.
Enabled	Use this setting to enable console redirection for the serial port 1.

Default setting: Enabled

3.7.2.2 Console Redirection Settings

For information about this function, refer to Chapter 3.7.4 in this manual.

3.7.3 Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

The following functions control the presence and content of the ACPI serial port redirection table (SPCR). This table is mainly used by the Windows server variants to provide Windows Emergency Management Services (EMS). This functionality is totally independent from serial redirection of other console output.

3.7.3.1 Console Redirection

SETTING	DESCRIPTION
Disabled	Use this setting to prevent the system from adding the SPCR table to the ACPI tables.
Enabled	Use this setting to add the SPCR table to the ACPI tables. The OS can further use the information provided for serial redirection services.

Default setting: Disabled

3.7.3.2 Out-of-Band Mgmt Port

This function is used to select the serial port intended for use with Out-of-Band Management. This functionality is independent from serial redirection of other console output.

SETTING	DESCRIPTION
COM0	Use this setting to specify that the serial port 0 is to be used with Out-of-Band Management.
COM1	Use this setting to specify that the serial port 1 is to be used with Out-of-Band Management.

Default setting: COM0

3.7.3.3 Data Bits

This is a display-only function providing information about the frame width for the Out-of-Band Management.

3.7.3.4 Parity

This is a display-only function providing information about the parity for Out-of-Band Management.

3.7.3.5 Stop Bits

This is a display-only function providing information about the number of stop bits for Out-of-Band Management.

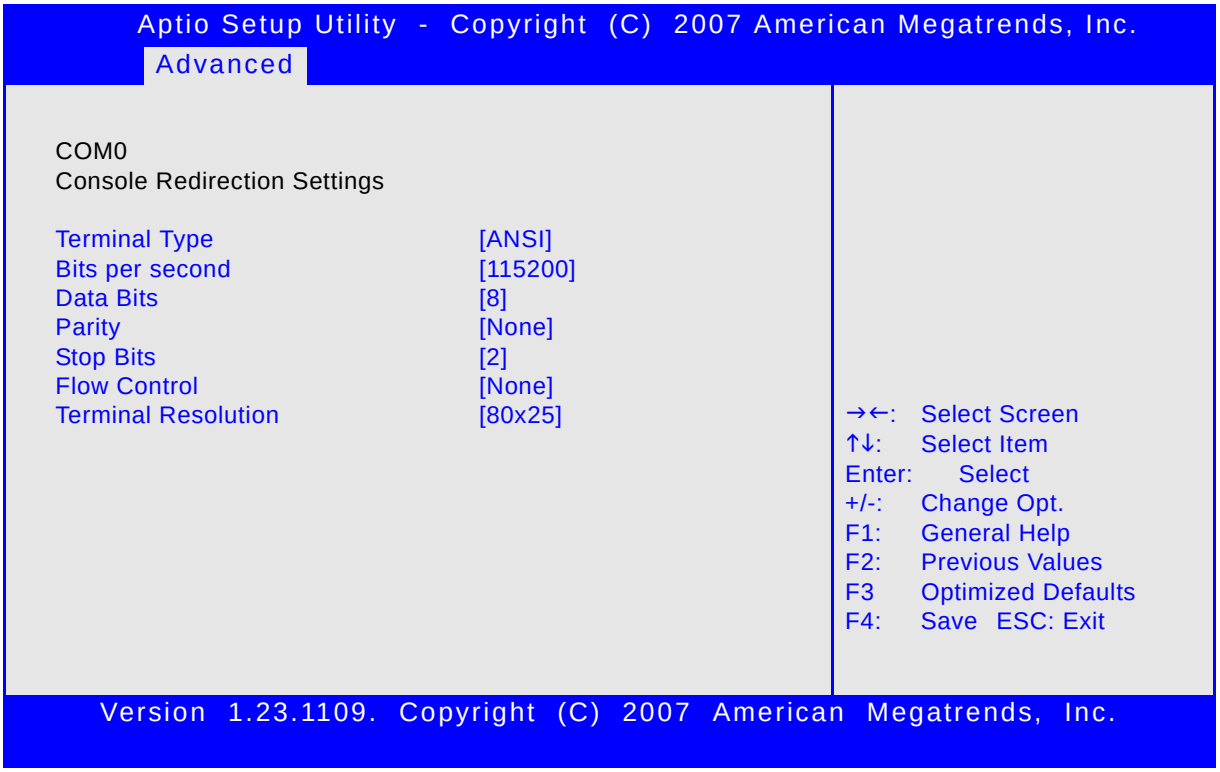
3.7.3.6 Terminal Type

SETTING	DESCRIPTION
VT100	Use one of these settings to select the terminal type for out-of-band management.
VT100+	
VT-UTF8	
ANSI	

Default setting: VT-UTF8

3.7.4 Console Redirection Settings

This screen provides information about functions for specifying the Console Redirection configuration settings for the serial port 0 and the serial port 1. Each serial port can be independently configured.



3.7.4.1 Terminal Type

SETTING	DESCRIPTION
VT100	Use one of these settings to select the terminal type to be emulated.
VT100+	
VT-UTF8	
ANSI	

Default setting: ANSI

3.7.4.2 Bits per second

SETTING	DESCRIPTION
9600	Use one of these settings to select the baud rate of the serial port.
19200	
57600	
115200	

Default setting: 115200

3.7.4.3 Data Bits

SETTING	DESCRIPTION
7	Use one of these settings to specify the number of data bits per frame.
8	

Default setting: 8

3.7.4.4 Parity

SETTING	DESCRIPTION
None	Use one of these settings to select the parity for the serial port.
Even	
Odd	
Mark	
Space	

Default setting: None

3.7.4.5 Stop Bits

SETTING	DESCRIPTION
1	Use one of these settings to specify the number of stop bits for the serial port.
2	

Default setting: 1

3.7.4.6 Flow Control

SETTING	DESCRIPTION
None	Use one of these settings to specify the type of flow control to be used for this serial port.
Hardware	
RTS/CTS	
Software	
Xon/Xoff	

Default setting: None

3.7.4.7 Terminal Resolution

SETTING	DESCRIPTION
80x25	Use one of these settings to select the resolution of the emulated terminal for serial console redirection.
100x31	

Default setting: 80x25

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Chapter 4

Chipset Setup

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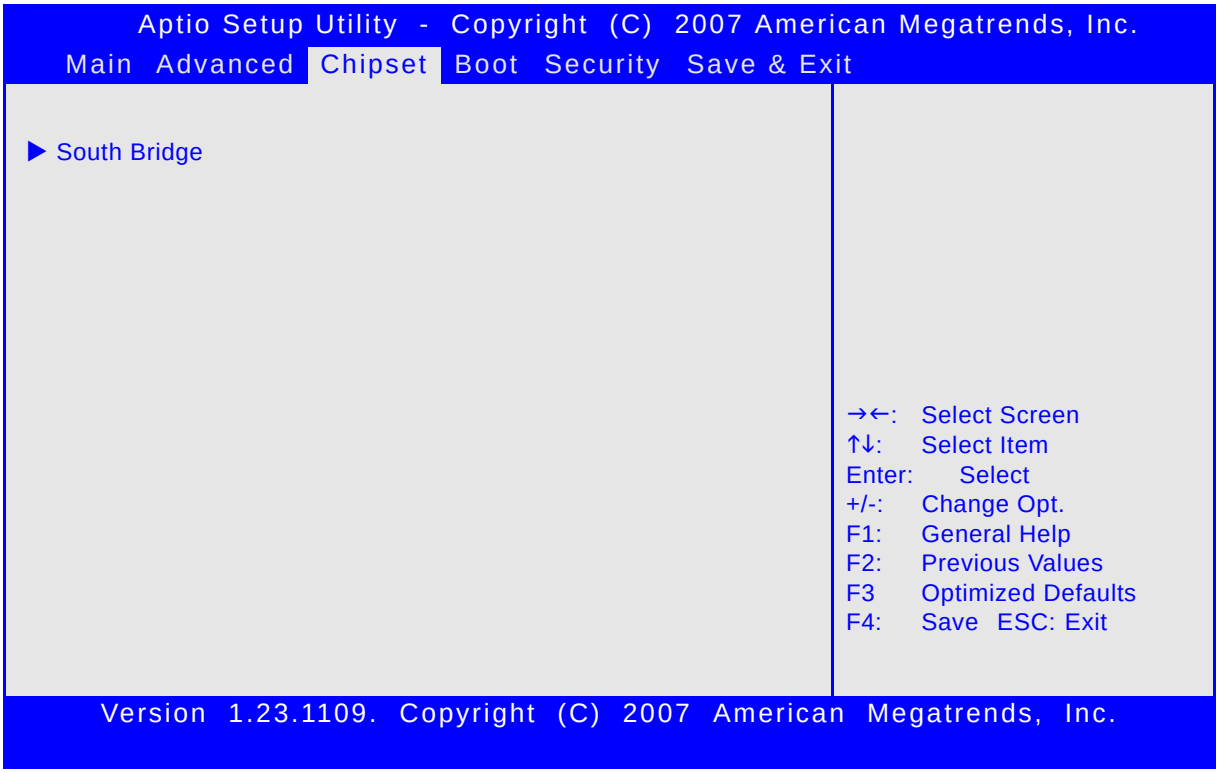
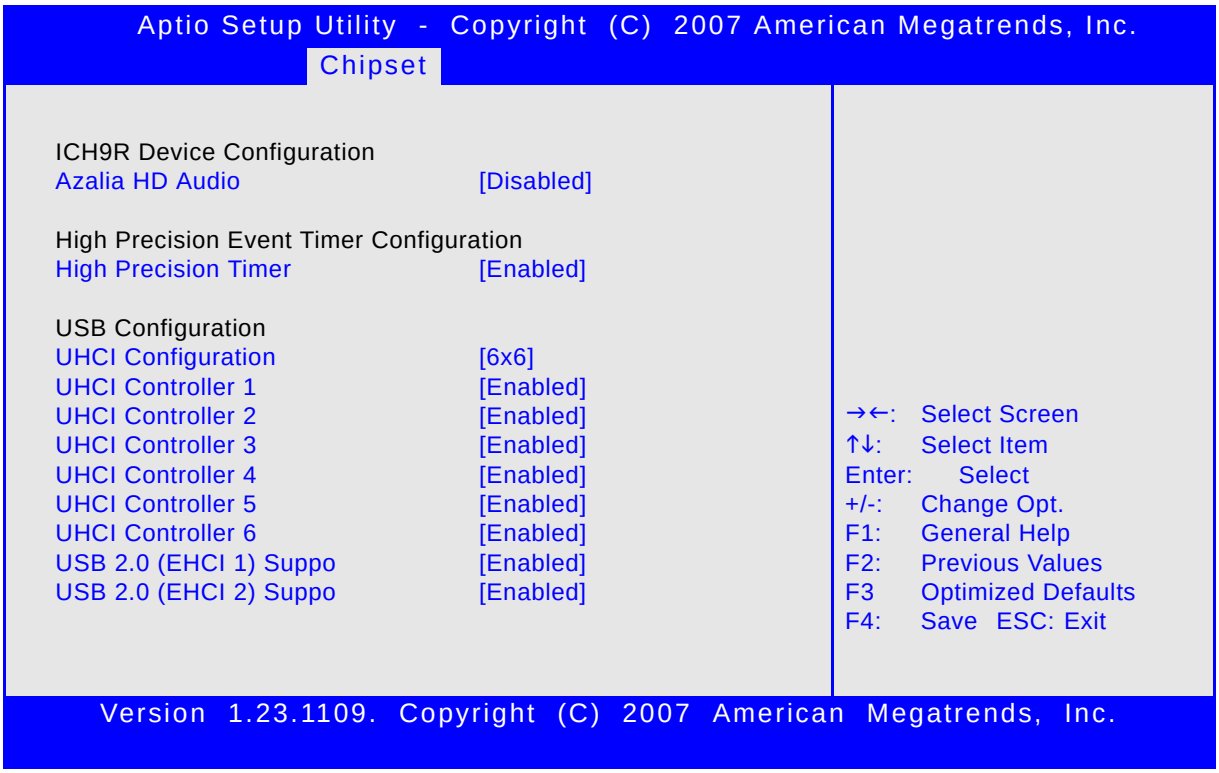
4. Chipset Setup

Select the Chipset tab to enter the Chipset Setup screen. This screen lists the chipset configuration sub-screens.


Aptio Setup Utility - Copyright (C) 2007 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
▶ South Bridge
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3 Optimized Defaults
F4: Save ESC: Exit
Version 1.23.1109. Copyright (C) 2007 American Megatrends, Inc.

4.1 SouthBridge Configuration

This screen provides functions for specifying the SouthBridge configuration settings.


Aptio Setup Utility - Copyright (C) 2007 American Megatrends, Inc.
Chipset
ICH9R Device Configuration
Azalia HD Audio [Disabled]
High Precision Event Timer Configuration
High Precision Timer [Enabled]
USB Configuration
UHCI Configuration [6x6]
UHCI Controller 1 [Enabled]
UHCI Controller 2 [Enabled]
UHCI Controller 3 [Enabled]
UHCI Controller 4 [Enabled]
UHCI Controller 5 [Enabled]
UHCI Controller 6 [Enabled]
USB 2.0 (EHCI 1) Suppo [Enabled]
USB 2.0 (EHCI 2) Suppo [Enabled]
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3 Optimized Defaults
F4: Save ESC: Exit
Version 1.23.1109. Copyright (C) 2007 American Megatrends, Inc.

4.1.1 ICH9R Device Configuration

4.1.1.1 Azalia HD Audio

This function is used to configure the presence of the chipset's internal HD audio controller. Currently, there is no HD audio codec present on the CP6016. Therefore, this option is reserved for future use.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the Azalia HD Audio function.
Enabled	Use this setting to enable the Azalia HD Audio function.

Default setting: Disabled

4.1.2 High Precision Event Timer Configuration

4.1.2.1 High Precision Event Timer

This function is used to control the presence of the high-precision event timer ACPI description table (HPET). This table is required for a modern OS (Linux) to make use of the high-precision event timer.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the high-precision event timer.
Enabled	Use this setting to enable the high-precision event timer.

Default setting: Enabled

4.1.3 USB Configuration

4.1.3.1 UHCI Configuration

This function is used to configure the mapping of the UHCI port to the EHCI controller. The ICH9R supports two USB2.0 controllers (EHCI) and up to 6 UHCI companions with two physical USB ports each. The UHCI controllers 1 to 3 are always mapped to the EHCI controller 1. The UHCI controllers 4 and 5 are always mapped to the EHCI controller 2. The UHCI controller 6 can be mapped either to the EHCI controller 1 or the EHCI controller 2.

SETTING	DESCRIPTION
6x6	Use this setting to map the UHCI controller 6 to the EHCI controller 2. This results in six physical ports per EHCI controller.
8x4	Use this setting to map the UHCI controller 6 to the EHCI controller 1. This results in eight physical ports on the EHCI controller 1 and four on the EHCI controller 2.

Note: If the USB2.0 (EHCI 2) support is set to Disabled, the configuration is always 6x0. This means that six physical ports on the EHCI controller 1 and none on the EHCI controller 2 are available since EHCI 2 is disabled.

4.1.3.2 UHCI Controller 1..3

Use these functions to configure the presence of the UHCI controllers 1..3 and their connected physical ports.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the UHCI controllers 1..3.
Enabled	Use this setting to enable the UHCI controllers 1..3.

Default setting: Enabled

Mapping of the UHCI Controllers 1..3 to the USB port:

UHCI CONTROLLER	USB PORT NUMBER	CONNECTOR
1	0, 1	Front USB, Free
2	2, 3	Front USB, Free
3	4, 5	Rear I/O, Rear I/O

4.1.3.3 UHCI Controllers 4..6

Use these functions to configure the presence of the UHCI controllers 4..6 and their connected physical ports.

Note: This function is available only if USB 2.0 (EHCI 2) Support is set to Enabled.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the UHCI controllers 4..6.
Enabled	Use this setting to enable the UHCI controllers 4..6.

Default setting: Enabled

Mapping of the UHCI Controllers 4..6 to the USB port:

UHCI CONTROLLER	PORT NUMBERS	CONNECTORS
4	6,7	Onboard Flash, Free
5	8,9	Rear I/O, Rear I/O
6	10, 11	Free, Free

4.1.3.4 USB 2.0 (EHCI 1) Support

SETTING	DESCRIPTION
Disabled	Use this setting to disable the USB 2.0 EHCI 1 controller.
Enabled	Use this setting to enable the USB 2.0 EHCI 1 controller.

Default setting: Enabled

4.1.3.5 USB 2.0 (EHCI 2) Support

Note: Disabling the USB 2.0 (EHCI 2) controller also disables the UHCI controllers 4..6.

SETTING	DESCRIPTION
Disabled	Use this setting to disable the USB 2.0 EHCI 2 controller.
Enabled	Use this setting to enablethe USB 2.0 EHCI 2 controller.

Default setting: Enabled

Chapter 5

Boot Setup

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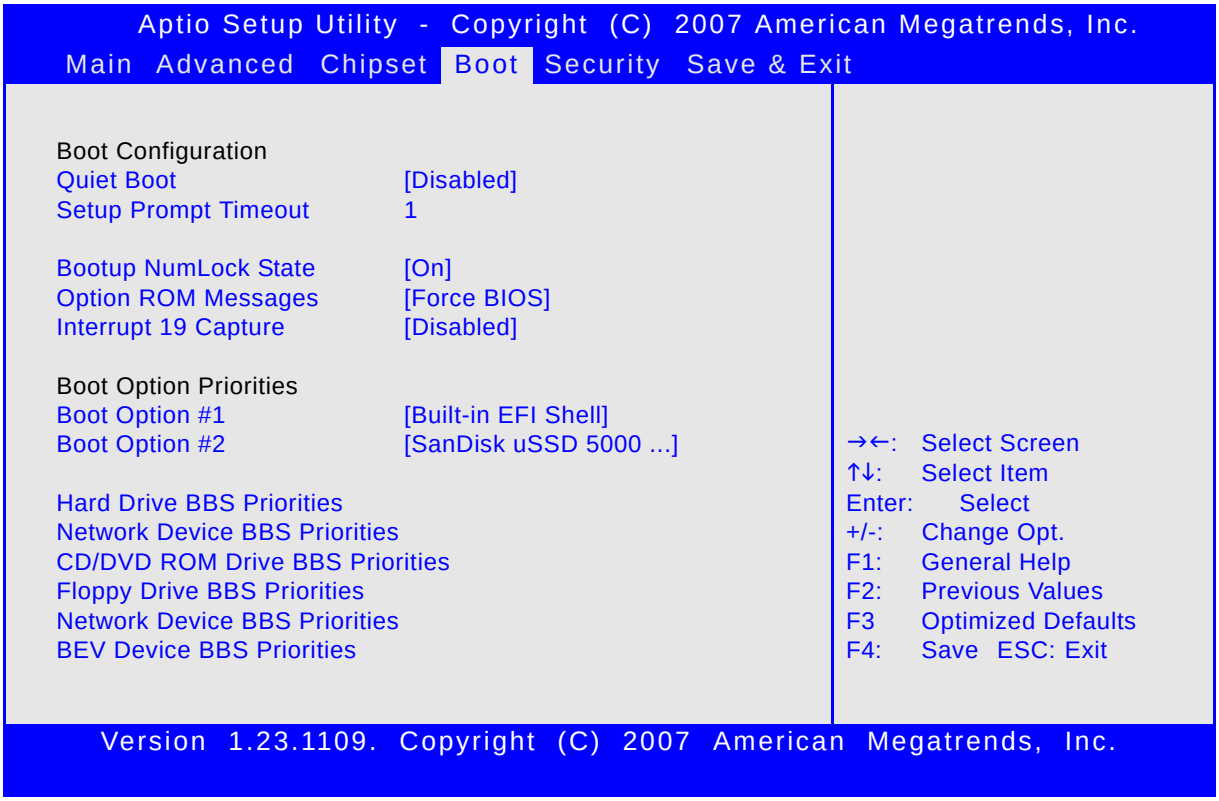
5. Boot Setup

Select the Boot tab to enter the Boot Setup screen. This screen lists the sub-screens for boot configuration and boot device priority.


Aptio Setup Utility - Copyright (C) 2007 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Boot Configuration
Quiet Boot [Disabled]
Setup Prompt Timeout 1
Bootup NumLock State [On]
Option ROM Messages [Force BIOS]
Interrupt 19 Capture [Disabled]
Boot Option Priorities
Boot Option #1 [Built-in EFI Shell]
Boot Option #2 [SanDisk uSSD 5000 ...]
Hard Drive BBS Priorities
Network Device BBS Priorities
CD/DVD ROM Drive BBS Priorities
Floppy Drive BBS Priorities
Network Device BBS Priorities
BEV Device BBS Priorities
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3 Optimized Defaults
F4: Save ESC: Exit
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5.1 Boot Configuration

5.1.1 Quiet Boot

This function is used to display either POST output messages or a splash screen during boot-up.

SETTING	DESCRIPTION
Disabled	Use this setting to display POST output messages during boot-up.
Enabled	Use this setting to display a splash screen during boot-up.

Default setting: Disabled

5.1.2 Setup Prompt Timeout

This integer function is used to set an additional time the POST should wait for the operator to press the key to enter setup. The time is entered in seconds.

SETTING	DESCRIPTION
1 ⋮ 65535	Use one of these settings to specify the setup prompt timeout.

Default setting: 1

5.1.3 Bootup NumLock State

This function is used to set the state of the keyboard's numlock function after POST.

SETTING	DESCRIPTION
On	Use this setting to switch on the keyboard's numlock function after POST.
Off	Use this setting to switch off the keyboard's numlock function after POST.

Default setting: On

5.1.4 Option ROM Messages

This function is used to control the messages of the loaded PCI option ROMs.

SETTING	DESCRIPTION
Force BIOS	Use this setting to force to a BIOS-compatible output. This will show the option ROM messages.
Keep Current	Use this setting to keep the current video mode. This will suppress option ROM messages. Option ROMs requiring interactive inputs may not work properly in this mode.

Default setting: Force BIOS

5.1.5 Interrupt 19 Capture

This function is used to specify if legacy PCI option ROMs are allowed to capture software interrupt 19h.

SETTING	DESCRIPTION
Disabled	Use this setting to prevent legacy PCI option ROMs from capturing software interrupt 19h.
Enabled	Use this setting to allow legacy PCI option ROMs to capture software interrupt 19h.

Default setting: Disabled

5.2 Boot Option Priorities

5.2.1 Boot Option #1..2

These functions are used to form the boot order and are dynamically generated. They represent either a legacy BBS (BIOS Boot Specification) class of devices or a native EFI boot entry. Press Return on each option to select the BBS class / EFI boot entry desired.

5.2.2 Hard Drive/Network Device/CD/DVD ROM Drive BBS Priorities/ Network Device BBS Priorities/BEV Device BBS Priorities

These functions lead to sub-menus that allow configuring the boot order for a specific device class. These options are only visible if at least one device for this class is present. These functions are dynamically generated.

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Chapter 6

Security Setup

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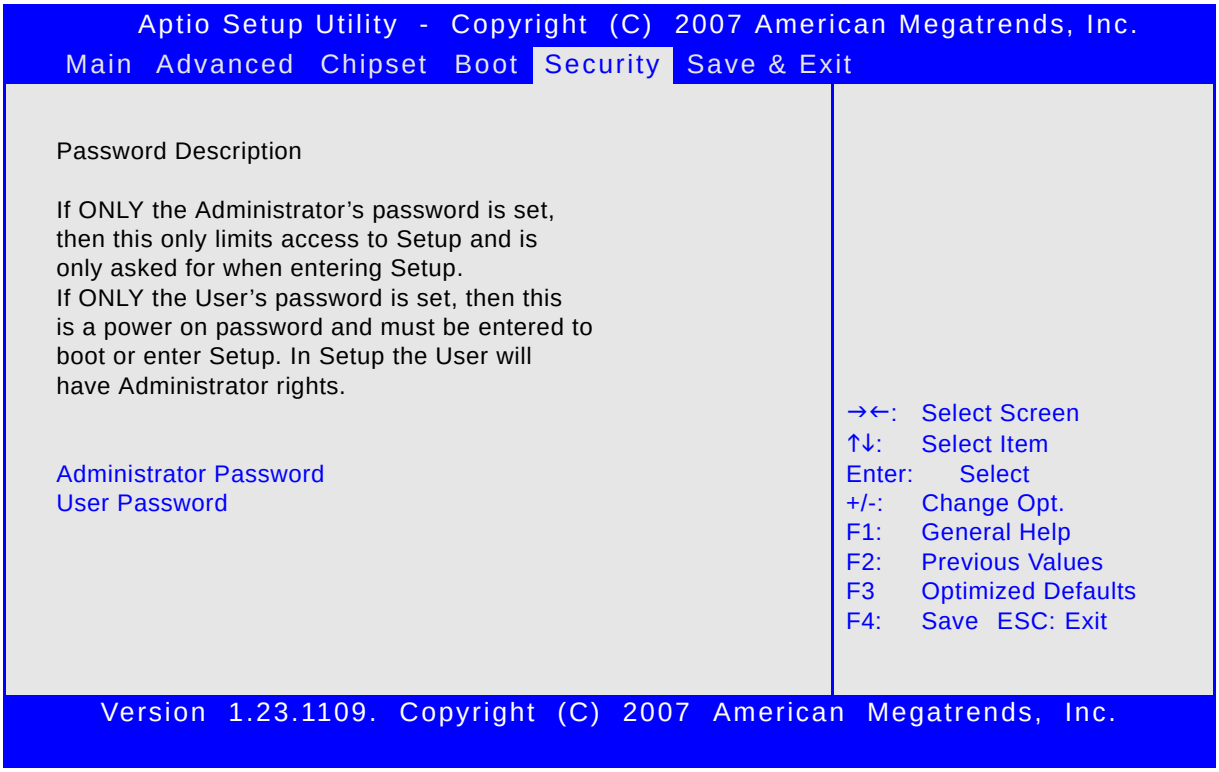
6. Security Setup

Select the Security tab to enter the Security Setup screen. This screen provides information about the passwords and functions for specifying the security settings.


Aptio Setup Utility - Copyright (C) 2007 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
Administrator Password
User Password
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3 Optimized Defaults
F4: Save ESC: Exit
Version 1.23.1109. Copyright (C) 2007 American Megatrends, Inc.

The following modes of security are provided:.

SETTING	DESCRIPTION
No password is set	Booting the system as well as entering the setup is unsecured.
Only Administrator password is set	Booting the system is unsecured. For entering the Setup, the Administrator password is required.
Only User password is set	The password is required for booting the system as well as for entering the Setup menu. On every startup, the user will be asked for the password.
Both User and Administrator passwords are set	Booting the system is unsecured. For entering the Setup, a password is required. If the User password is entered here, most of the Setup entries are read only; only entries related to the boot sequence can be modified. Entering the Administrator password provides full access to all Setup entries.

6.1 Administrator Password

This function is used to set, change or delete the Administrator password. If there is already a password installed, the system asks for this first. To clear a password, simply enter nothing and acknowledge by pressing Return. To set a password, enter it twice and acknowledge by pressing Return.

Note: The password is case sensitive.

6.2 User Password

This function is used to set, change or delete the User password. If there is already a password installed, the system asks for this first. To clear a password, simply enter nothing and acknowledge by pressing Return. To set a password, enter it twice and acknowledge by pressing Return.

Note: The password is case sensitive.

6.3 Remember the Password

It is highly recommended to keep a record of all passwords in a safe place. Forgotten passwords may lead to being completely locked out of the system. Booting may not be possible, and in worst case the uEFI BIOS Setup program will also not be accessible.

If the system cannot be booted because neither the User password nor the Administrator password are known, refer to Chapter 4.1 in the CP6016 User Guide for information about clearing the uEFI BIOS settings, or contact Kontron for further assistance.

Chapter 7

Save & Exit

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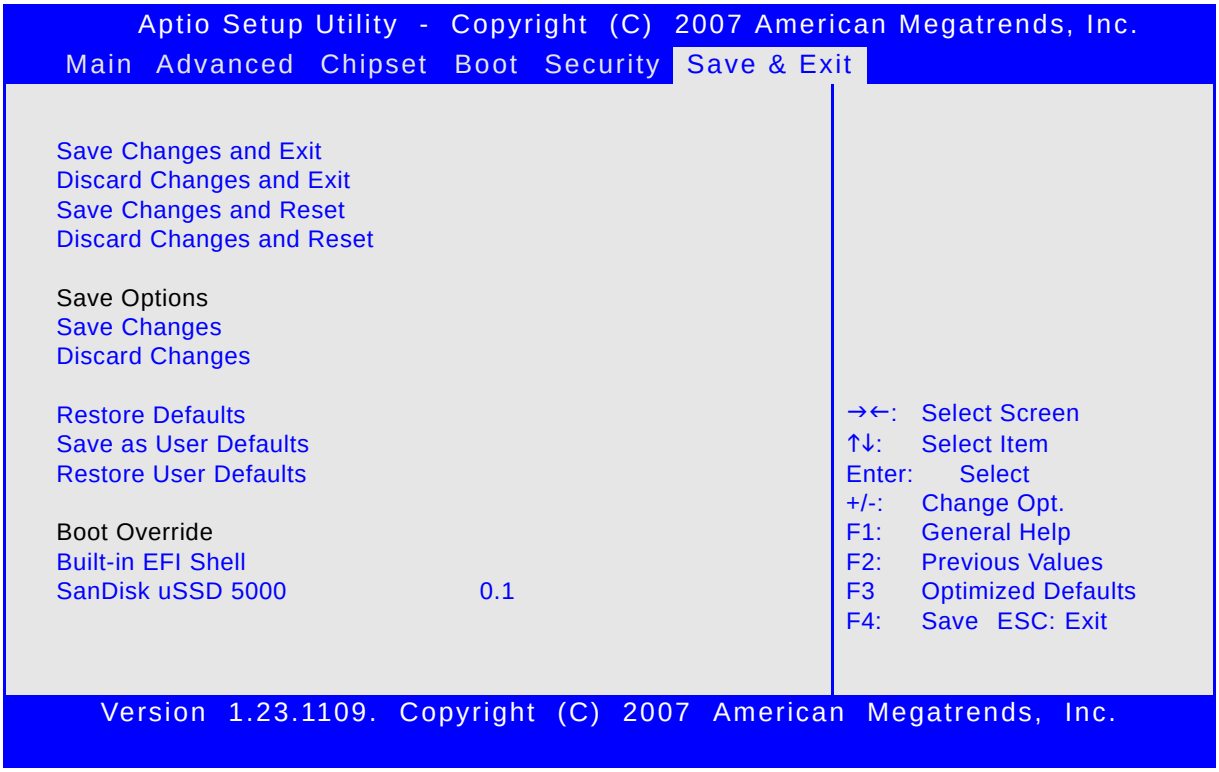
7. Save & Exit

Select the Save & Exit tab to enter the Save & Exit menu screen. This screen provides functions for handling changes made to the uEFI BIOS settings and the exiting of the Setup program.



7.1 Save Changes and Exit

This function is used to save all changes made within the Setup to Flash. This function continues the boot process as long as no option was altered that requires a reboot.

Note: The Setup will ask for confirmation prior to executing this command.

7.2 Discard Changes and Exit

This function is used to discard all changes made within the Setup. This function continues the boot process.

Note: The Setup will ask for confirmation prior to executing this command.

7.3 Save Changes and Reset

This function is used to save all changes made within the Setup to Flash. This function performs a reboot afterwards.

Note: The Setup will ask for confirmation prior to executing this command.

7.4 Discard Changes and Reset

This function is used to discard all changes made within the Setup. This function performs a reboot afterwards.

Note: The Setup will ask for confirmation prior to executing this command.

7.5 Save Changes (Save Options)

This function is used to save all changes made within the Setup to Flash. This function returns to Setup.

Note: The Setup will ask for confirmation prior to executing this command.

7.6 Discard Changes (Save Options)

This function is used to discard all changes made within the Setup. This function returns to Setup.

Note: The Setup will ask for confirmation prior to executing this command.

7.7 Restore Defaults (Save Options)

This function is used to restore all tokens to factory default.

Note: The Setup will ask for confirmation prior to executing this command.

7.8 Save as User Defaults (Save Options)

This function is used to save all current settings as user default. The current setup state can later be restored using Restore User Defaults.

Note: The Setup will ask for confirmation prior to executing this command.

7.9 Restore User Defaults (Save Options)

This function is used to restore all tokens to settings previously stored by Save as User Defaults.

Note: The Setup will ask for confirmation prior to executing this command.

7.10 Boot Override

This group of functions includes a list of tokens, each of them corresponding to one device within the boot order. Select a drive to immediately boot that device regardless of the current boot order. If booting to EFI Shell this way, an exit from the shell returns to Setup.

Chapter 8

uEFI Shell

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8. uEFI Shell

The Kontron uEFI BIOS features a built-in and enhanced version of the uEFI Shell. For a detailed description of the available standard shell scripting refer to the EFI Shell User's Guide. For a detailed description of the available standard shell commands, refer to the Shell Command Manual 1.0. Both documents can be downloaded from the EFI and Framework Open Source Community homepage (https://efi-shell.tianocore.org) under the "Documents and Files" section.

Please note that not all shell commands described in the Shell Command Manual 1.0 are provided by the Kontron uEFI BIOS.

8.1 Introduction, Basic Operation

The uEFI shell forms an entry into the uEFI boot order and is the first boot option by default. It is simply started by putting the uEFI shell first in boot and running the board as usual.

8.1.1 Shell Startup

If the shell is executed, it displays its signon message followed by a list of detected devices. The output produced by the device mapping table can vary depending on the board's configuration.

```
EFI Shell version 2.00 [4.631]
Current running mode 1.1.2
Device mapping table
  fs0      :Removable HardDisk - Alias hd33b0b0b blk0
            Acpi(PNP0A03,0)/Pci(1D|7)/Usb(1, 0)/Usb(1, 0)/HD(Part1,Sig17731773)
  fs1      :Removable BlockDevice - Alias f33b0c0 blk1
            Acpi(PNP0A03,0)/Pci(1D|7)/Usb(1, 0)/Usb(2, 0)
  blk0     :Removable HardDisk - Alias hd33b0b0b fs0
            Acpi(PNP0A03,0)/Pci(1D|7)/Usb(1, 0)/Usb(1, 0)/HD(Part1,Sig17731773)
  blk1     :Removable BlockDevice - Alias f33b0c0 fs1
            Acpi(PNP0A03,0)/Pci(1D|7)/Usb(1, 0)/Usb(2, 0)
  blk2     :HardDisk - Alias (null)
            Acpi(PNP0A03,0)/Pci(1F|2)/Ata(Primary,Master)/HD(Part1,SigC811D18D)
  blk3     :BlockDevice - Alias (null)
            Acpi(PNP0A03,0)/Pci(1F|2)/Ata(Primary,Master)
  blk4     :Removable BlockDevice - Alias (null)
            Acpi(PNP0A03,0)/Pci(1D|7)/Usb(1, 0)/Usb(1, 0)

Press the ESC key within 5 seconds to skip startup.nsh, and any other key to
continue.
```

If the ESC key is pressed before the 5-second timeout has elapsed, the shell prompt is shown:

```
Shell>
```

8.2 Kontron Shell Commands

The Kontron uEFI implementation provides a number of additional commands that are related to the specific HW features of the Kontron system.

The following tables provide information concerning Kontron-specific commands. The command response values indicated can vary depending on the board's configuration.

kboardinfo

FUNCTION:	Shows board identification data
SYNTAX:	**kboardinfo**
DESCRIPTION:	The **kboardinfo** command shows a summary of board-specific identification data. It is especially useful for support queries because it contains this data in a concentrated form.
USAGE:	Shows board identification data COMMAND / RESPONSE: **Shell> kboardinfo** **KOMaOEMF rev.: 1** **Board ID: 0xAD** **Hardware rev.: 0x0** **Logic rev.: 0x9** **Boot flash: Boot flash 0** **In system slot: No** **Geographic Address: 3** **Material number:** **Hardware index:** **Serial number:** **EFI Material number:** **EFI index: 10** **NorthBridge.: 0x90** **SouthBridge.: 0x2** **RIO Module: 11x1**

KOMaOEMF rev.:	Revision of KOMaOEMF protocol
Board ID:	Kontron board identification value (should be 0xAD for the CP6016)
Hardware rev.:	Hardware revision of this board
Logic rev.:	Logic revision of this board
Boot flash:	Current boot flash: either “Boot flash 0” or “Boot flash 1”
In system slot:	“Yes” if the board is plugged into the system slot, otherwise “No”.
Geographic Address:	Geographic address of the CPCI slot the board is currently plugged into
Material number:	Kontron hardware reference number
Hardware index:	Kontron hardware index
Serial number:	This board’s unique serial number
EFI Material number:	Kontron uEFI reference number
EFI index:	Version of this uEFI BIOS
NorthBridge.:	Chip revision of the NorthBridge
SouthBridge.:	Chip revision of the SouthBridge
RIO Module:	Type of attached RIO module

kboot

FUNCTION:

Boot a legacy OS
Not to be used for uEFI BootLoaders!

SYNTAX:

`kboot [-?|-d|-p|-p <path>|-n <name>|-t <type>]`

where:

?	Show online help
-d	Boot default order
-p <path>	Specify the path to the device to boot from
-n <name>	Specify the device name to boot from
-t <type>	Specify the device type to boot from

Available types are:

floppy
harddrive
cdrom
network
usb-floppy
usb-harddrive
usb-cdrom

DESCRIPTION:

The **kboot** command boots a legacy OS. Boot device can be selected in a very flexible way. If the requested device is not present, boot returns to shell. The **kboot** command cannot boot native uEFI operating systems. But since these are bootable from shell by calling their bootloader, this is not necessary either. If a requested device is present but not bootable, uEFI continues to boot with the next bootable device in the boot order.

USAGE:

Show all connected devices:

COMMAND / RESPONSE:

```
fs0:\> kboot
____BBS_TABLE____
00002 network “IBA GE Slot 0100 v1300”
00003 network “IBA GE Slot 0101 v1300”
00004 network “IBA GE Slot 0200 v1300”
00005 network “IBA GE Slot 0201 v1300”
00002 usb-harddrive “SanDisk uSSD 5000 0.1”
Device path: Acpi(PNP0A03,0)/Pci(1A|7)/Usb(1,0)
0001 usb-harddrive “KingstonDataTraveler 2.04.10”
Device path: Acpi(PNP0A03,0)/Pci(1D|7)/Usb(1,0)
```

Boot from device containing the string “Kingston”:

```
fs0:\> kboot -n Kingston
```

Boot from the first device found that is of type floppy:

```
fs0:\> kboot -t floppy
```

kbootnsh

FUNCTION:	Manages the startup script stored in the flash
SYNTAX:	**`kbootnsh [-?|-g <filename>|-p <filename>|-d]`** where: -? Show online help -g <filename> Store the current boot script to disk. If there is no physical disk drive present, the **kmkramdisk** command may be used. -p <filename> Store the shell script pointed to by filename to flash. Note: The shell script cannot be larger then 400 bytes. -d Delete the current startup script from flash.
DESCRIPTION:	The **kbootnsh** command manages the flash stored startup script. If the shell is launched by the boot process, it executes a shell script stored in the flash. If the shell script terminates, the shell executes a **kboot -d** command to continue the boot process. However, the shell script can of course contain any other boot command.
USAGE:	Get current startup script to file named boot.nsh **`kbootnsh -g boot.nsh`** Store file named boot.nsh to flash: **`kbootnsh -p boot.nsh`** Delete startup script: **`kbootnsh -d`**

kclsp

FUNCTION:	Configure clock spreading
SYNTAX:	**`kclsp [-?|-d|-e]`** where: -? show help -d disable clock spreading -e enable clock spreading
DESCRIPTION:	The **kclsp** command enables or disables clock spreading on the onboard core clock generator. Clock spreading can be used to reduce system EMI.
USAGE:	Get help: COMMAND / RESPONSE: **`Shell> kclsp -?`** **`Kontron Clock Spreading Configuration for ICS9LPRS365`** **`-d disable clock spreading`** **`-e enable clock spreading`**

kmkramdisk

FUNCTION:	Create RAMdisk drives
SYNTAX:	**kmkramdisk [-?|-s <size> <name>]** where: -? show help -s <size> <name> create a RAMdisk of given size in Megabytes with the mount point name <name>
DESCRIPTION:	Creates a RAMdisk of variable size. Can be very useful to perform file operations when no real filesystem is connected to the system. Note: The RAMdisk loses its mount point name after all drives are remapped by the **map -r** command. The RAMdisk will then be enumerated as any other connected drive and gain a mount point name like “fs0”. This is not a bug of the **kmkramdisk** command but a normal function of the uEFI framework.
USAGE:	Create RAMdisk: COMMAND / RESPONSE: **rd:\> kmkramdisk -s 5 myramdisk** **Device mapping table** **myramdisk :BlockDevice - Alias (null)** **VenMsg’(93B5F448-127A-4B29-B306-** **5BE8AAC4826E)** **Success - Force file system to mount** **rd:\> myramdisk:** **myramdisk:\> echo testfile > testfile** **myramdisk:\> ls** **Directory of: myramdisk:** **05/24/08 04:39a 22 testfile** **1 File(s) 22 bytes** **0 Dir(s)**

kresetconfig

FUNCTION:	Control the board reset behavior
SYNTAX:	**`kresetconfig [-?|<parameter>]`** where: -? Show help <parameter> One of pcislave [on|off] Controls if the board shall react on a PCI backplane reset if it is used as slave board in a peripheral slot. It has no effect if the board is located within a PCI master slot.
DESCRIPTION:	The **kresetconfig** command controls the board's reset behavior.
USAGE:	Enable PCI backplane reset: COMMAND / RESPONSE: **`Shell> kresetconfig pcislave on`** **`Reset from system master is enabled`**
	Disable PCI backplane reset: COMMAND / RESPONSE: **`Shell> kresetconfig pcislave off`** **`Reset from system master is disabled`**

kwdt

FUNCTION:	Configure the Kontron onboard Watchdog
SYNTAX:	**kwdt [-?|-t <timeindex>]** where: -? Show help -t <timeindex> Configure the Watchdog with the time related to timeindex and activate it with reset routing Call kwdt -h to obtain a list of timeindex values and related times
DESCRIPTION:	The **kwdt** command allows to enable the Kontron onboard Watchdog with reset target before OS boot. This can be used to detect if the OS fails to boot and react by reset. The OS Watchdog driver is required for this functionality to operate.
USAGE:	Get help: COMMAND / RESPONSE: **Shell> kwdt -?** **-t [time] - set Timer** **value 0 = 125ms** **value 1 = 250ms** **value 2 = 500ms** **value 3 = 1s** **value 4 = 2s** **value 5 = 4s** **value 6 = 8s** **value 7 = 16s** **value 8 = 32s** **value 9 = 64s** **value 10 = 128s** **value 11 = 256s**
	Set Watchdog to 16 seconds and activate it COMMAND / RESPONSE (none): **Shell> kwdt -t 7** Note: Because there is no application which triggers the Watchdog, the system will be reset after 16 seconds in this case. This command should be invoked from a script, followed by an operating system boot, and the OS then has to start triggering the Watchdog.

8.3 uEFI Shell Scripting

8.3.1 Startup Scripting

If the ESC key is not pressed and the timeout is run out, either the Kontron Flash-stored startup is executed, if present, or the uEFI specified **`startup.nsh`** script located under **`\efi\boot\`** on any of the attached drives is executed. If none of the startup scripts is present, or the startup script terminates, the default boot order is continued.

If the shell is started with no interaction, it tries to execute some startup scripts automatically. It searches for scripts in the following order:

1. Kontron Flash-stored startup script

2. If there is no Kontron Flash-stored startup script present, the uEFI specified **`startup.nsh`** script is used. This script must be located on any of the attached FAT formatted disk drives under **`\efi\boot\startup.nsh.`**

If both startup scripts are absent, the shell terminates and the default boot order is continued.

8.3.2 Create a Startup Script

Startup scripts can be created using the uEFI shell built-in editor **edit** or under any OS with a plain text editor of your choice. To create a **`startup.nsh`** type shell script, simply save the script on any FAT-formatted drive attached to the system under **`\efi\boot\startup.nsh.`** To create a Kontron flash-stored startup script, the script is to be saved anywhere on a FAT-formatted drive attached to the system and stored to flash using the built-in uEFI shell command **kbootnsh**.

8.3.3 Examples of Startup Scripts

8.3.3.1 Automatic Booting from USB Memory Stick

Automatic booting is made from a USB memory stick, if present, otherwise the boot is made from the harddrive.

```
kboot -t usb-harddrive
kboot -t harddrive
```

If neither a USB memory stick nor a harddrive is present, the boot order is continued.

8.3.3.2 Switch On Clock Spreading Prior to Booting from Harddrive

```
kclsp -e
kboot -t harddrive
```

If no harddrive is present, the default order is continued.

8.3.3.3 Execute Shell Script on Other Harddrive

This example executes the shell script named **`bootme.nsh`** located in the root of the first detected disc drive (**`fs0`**).

```
fs0:
bootme.nsh
```

If there is no harddrive or the script does not exist, the default boot order is continued.

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